

CLAIMS

1. A method of transmitting data between network equipments in a telecommunication network comprising a radio access network (2) defining 5 cells in which user equipments (7) are localized and a core network (1) linked to said radio access network and adapted to establish a multimedia broadcast multicast context, named "MBMS context", for said user equipments (7) located in said cells, characterized in that it comprises the steps of :

- transmitting a first request for broadcasting data to user equipments (7) localized in a broadcast area defined by at least one of said cells, to a broadcast multicast service server (9) of said telecommunication network,
- establishing a first connection between said broadcast multicast service server (9) and said radio access network (2),
- sending a second request from said broadcast multicast service server (9) to said core network (1), via said radio access network (2), to establish a second connection between said radio access network (2) and said core network (1) for signalling in between,
- sending a third request, from said broadcast multicast service server (9) to said core network (1), via said first and second connections, for establishment of a MBMS context, in order to activate a broadcast service for broadcasting said data to said user equipments (7) localized in said broadcast area.

2. Method according to claim 1, wherein said radio access network (2) comprises radio network controllers (5-j) each connected to a base station (6) to define said cells, and said core network (1) comprises at least one service serving node (4) linked to said radio network controllers (5-j) and at least one gateway serving node (3) linked to said service serving node (4), wherein said 25 first connection is established between said broadcast multicast service server (9) and each radio network controller (5-j) controlling a cell included in said broadcast area and named "chosen radio network controller (5-j)", and wherein said second connection is established between said service serving 30 node (4) and said chosen radio network controller (5-j).

node (4) and each said "chosen radio network controller (5-j)", whereby said third request is send from said broadcast multicast service server (9) over said first connection via said "chosen radio network controller (5-j)" and further over said second connection to said service serving node (4).

5 3. Method according to claim 2, where by said service serving node (4), upon reception of said third request, sets up an MBMS context part between said gateway serving node (3) and said service serving node (4).

10 4. Method according to claim 3, wherein said gateway serving node (3) sets up, upon set up of said MBMS context part, a bearer path between said gateway serving node (3) and said broadcast multicast service server (9).

15 5. Method according to one of claims 2 to 4, wherein it comprises, after said MBMS context part set up and said bearer path set up an exchange of dedicated messages between said broadcast multicast service server (9), said radio network controllers (5-j) and said service serving node (4), via said first and second connections, at least some of said dedicated messages comprising at least cell identifiers for designating each cell of said broadcast area in which data need to be broadcasted, in order to establish MBMS bearers for transporting said data to broadcast.

20 6. Method according to claim 5, wherein said MBMS bearers comprise first MBMS bearer(s) between said service serving node (4) and each of said chosen radio network controllers (5-j) and second MBMS bearers between each of said chosen radio network controllers (5-j) and each user equipment (7) localized in the cell it controls.

25 7. Method according to one of claims 5 and 6, wherein said data to broadcast are transported from said broadcast multicast service server (9) to said user equipments (7) via said gateway serving node (3), said service serving node (4) and said chosen radio network controllers (5-j).

30 8. Method according to one of claims 5 and 6, wherein said data to broadcast are transported from a content provider server (14) to said user equipments (7) via said gateway serving node (3), said service serving node (4) and said chosen radio network controllers (5-j).

9. Method according to one of claims 6 to 8, wherein anyone of said first MBMS bearers and said MBMS context parts, is chosen in a group comprising GTP tunnels and IP tunnels.

10. Method according to one of claims 5 to 9, wherein at least anyone of said MBMS bearers, MBMS context parts and said bearer paths, is shared for broadcasting said data to said user equipment (7).

11. Broadcast multicast service server (9) for a telecommunication network comprising a radio access network (2) defining cells in which user equipments (7) are localized and a core network (1) linked to said radio access network and adapted to establish a multimedia broadcast multicast context for said user equipments (7) located in said cells, characterized in that it comprises i) connecting means (16) arranged, when receiving a first request for broadcasting data to user equipments (7) localized in a broadcast area defined by at least one of said cells, to establish a first connection with said radio access network (2), and ii) requesting means (17) arranged, when said first connection is established, to send a second request to said core network (1), via said radio access network (2), in order said core network (1) establishes a second connection with said radio access network (2) for signalling with it, and, when said second connection is established, to send a third request to said core network (1), via said first and second connections, for establishment of a MBMS context, in order to activate a broadcast service for broadcasting said data to said user equipments (7) localized in said broadcast area.

12. Broadcast multicast service server (9) according to claim 11, wherein said radio access network (2) comprises radio network controllers (5-j) each connected to a base station (6) to define said cells, and said core network (1) comprises at least one service serving node (4) linked to said radio network controllers (5-j) and at least one gateway serving node (3) linked to said service serving node (4), wherein said first connection is established between said connection means (16) and each radio network controller (5-j) controlling a cell included in said broadcast area and named "chosen radio

network controller (5-j)", and wherein said second connection is established between said service serving node (4) and each said "chosen radio network controller (5-j)", whereby said third request is send from said requesting means (17) over said first connection via said "chosen radio network controller (5-j)" and further over said second connection to said service serving node (4).

13. Broadcast multicast service server (9) according to claim 12, wherein, upon reception of said third request, said service serving node (4) sets up an MBMS context part between said gateway serving node (3) and said service serving node (4).

10 14. Broadcast multicast service server (9) according to claim 13, wherein upon set up of said MBMS context part, said gateway serving node (3) sets up a bearer path between said gateway serving node (3) and said connection means (16).

15 15. Broadcast multicast service server (9) according to one of claims 12 to 14, wherein said requesting means (17) is arranged, after said MBMS context set up and said bearer path set up, to exchange dedicated messages including at least cell identifiers for designating each cell of said broadcast area in which data need to be broadcasted with said radio network controllers (5-j) and said service serving node (4), via said first and second connections, in order MBMS bearers be established for transporting said data to broadcast.

20 16. Broadcast multicast service server (9) according to claim 15, wherein said requesting means (17) is arranged to transmit received data to broadcast to said gateway serving node (3), in order said data be transported up to said user equipments (7) via said service serving node (4) and said chosen radio network controllers (5-j).

25 17. Broadcast multicast service server (9) according to one of claims 11 to 16, wherein said requesting means (17) is arranged, when at least two cells of said broadcast area have a coverage area at least partly identical, to select between said cells the most appropriated cell(s) according to at least one chosen criterion.

30 18. Broadcast multicast service server (9) according to claim 17,

wherein said chosen criterion is made of data transmitted to said server (9) and coming from a same source that said data to broadcast.

19. Broadcast multicast service server (9) according to one of claims 17 and 18, wherein said criterion is chosen in a group comprising at least broadcasting cost, level priority and congestion status.

5 20. Radio network controller (5-j) for a radio access network (2) of a telecommunication network (TN), said radio network controller being linkable to a core network (1) of said telecommunication network (TN) adapted to establish a multimedia broadcast multicast context for user equipments (7), characterized in that it comprises :

10 i) first forwarding means (19) arranged to receive a second request sent by a broadcast multicast service server (9) according to one of claims 11 to 19 on a first connection; and arranged to forward said second request to a service serving node (4) in said core network in order to enable said service serving node(4) to establish a second connection with said radio network controller (5-j), and

15 ii) second forwarding means (20) arranged to receive a third request send by said broadcast multicast service server (9) and to forward said third request to said service serving node (4).

20 21. Telecommunication network (TN) comprising a radio access network (2) defining cells in which user equipments (7) are localized and a core network (1) linked to said radio access network and adapted to establish a multimedia broadcast multicast context for said user equipments (7) located in said cells, characterized in that it comprises at least one broadcast multicast service server (9) according to one of claims 11 to 19.

25 22. Telecommunication network (TN) according to claim 21, characterized in that said radio access network (2) comprises at least one radio network controller (5-j) according to claim 20.

30 23. Telecommunication network (TN) according to claim 22, characterized in that said broadcast multicast service server (9) is linked through a first connection to said radio network controller (5-j), via a cell

broadcast centre (10).

24. Telecommunication network (TN) according to one of claims 21 to 23, characterized in that it is chosen in a group comprising GPRS network and UMTS network.

5 25. Use of the method, broadcast multicast service server (9), radio network controller (5-j) and telecommunication network (TN) according to one of claims 1 to 24, wherein said first connection is chosen in a group comprising TCP/IP, IPsec, UDP/IP, Transport Layer Security TLS and ATM connection.

10 26. Use according to claim 25, wherein said second and third requests are send through said first and second connections according to a protocol chosen in a group comprising RANAP and SABP.